

Application/Control Number: 10/808,361

Page 2

Art Unit: 2800

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Art Unit: 2800

11. A semiconductor device having a porous film incorporated therein, the porous film being obtained using a porous film-forming composition comprising
- 20 (A) 100 parts by weight of a curable silicone resin having a number average molecular weight of at least 100.
- (B) 5 to 50 parts by weight of a micelle-forming surfactant, and
- (C) 0.01 to 10 parts by weight of a compound which
- 25 generates an acid upon pyrolysis.

12. The semiconductor device of claim 11 wherein the curable silicone resin (A) comprises at least 10 mol% of structural units derived by hydrolytic condensation of a
- 30 silane having the general formula (1):



- wherein Z is a hydrolyzable group or a partial hydrolytic
- 35 condensate thereof.

13. The semiconductor device of claim 11 wherein the compound (C) generates an acid upon pyrolysis at a pyrolytic temperature which is lower than the decomposition temperature or boiling point of the micelle-forming surfactant (B).

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14. The semiconductor device of claim 13 wherein the pyrolytic temperature of the compound (C) is up to 150°C.

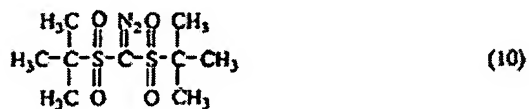
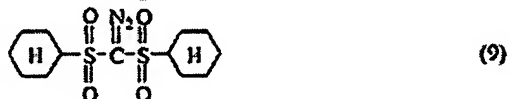
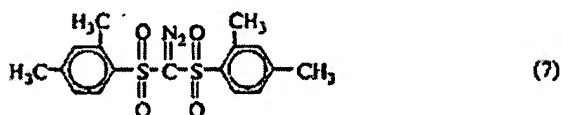
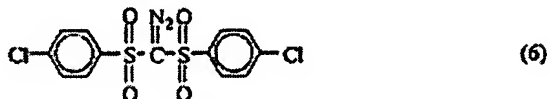
15. The semiconductor device of claim 14 wherein the
- 10 compound (C) is a diazo compound of the general formula (3) or (4):



wherein R<sup>1</sup> and R<sup>2</sup> are each independently a substituted or unsubstituted monovalent hydrocarbon group.

Art Unit: 2800

16. The semiconductor device of claim 15 wherein the diazo compound is selected from compounds of the formulae (5) to (10).



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17. The semiconductor device of claim 11 wherein said composition further comprises a solvent.

18. The semiconductor device of claim 11 wherein the  
 10 porous film is present as a dielectric film between metal lines in an identical layer in a multilayer interconnect structure or an interlayer dielectric film between upper and lower metal wiring layers.